

BANIS, T.Ya.; VEBRA, A.I.; POZHELA, Yu.K.; REPSHAS, K.K. [Repsas, K.];  
SHILAL'NIKAS, V.I. [Silalnikas, V.]

Heating of the current carriers in semiconductors in strong  
electric fields. Radiotekh. i elektron. 7 no.9:1519-1522 S '62.  
(MIRA 15:9)

1. Institut fiziki i matematiki AN Litovskoy SSR.  
(Electric fields) (Semiconductors)

STYRO, B.I. [Styra, B.]; VEDRA, E.I.; GHOPAUSKAS, K.K. [Gopauskas, K.]

R: Reactivity profiles in overcast air. Trudy AN Lit.SSR. Ser.  
B. no.1:3-9 '64 (MIRA 17:7)

1. Institut geologii i geografii AN Litovskoy SSR.

STYRO, B.I.; VEBRA, E.I.; SHOPAUSKAS, K.K.; KHUNDZHUA, T.G.

Coagulation of radioactive aerosols with cloud droplets.  
Soob. AN Gruz. SSR 33 no.1:61-67 Ju '64. (MIRA 17:7)

1. Institut geofiziki AN Gruzinskoy SSR. Predstavleno chlenom  
korrespondentom akada. ii M.M. Miriashvili.

ACCESSION NR: AP4031103

S/0236/64/000/001/0003/0009

AUTHOR: Sty\*ro, B.I.; Vebra, E.I.; Shopauskas, K.K.

TITLE: The radioactivity profile in clouded air

SOURCE: AN LitSSR. Trudy\*. Seriya B, no. 1, 1964, 3-9

TOPIC TAGS: radioactivity, di tribution in air, distribution in cloud, radon decomposition, coagulation coefficient

ABSTRACT: The distribution of radioactivity in the air in a cloud was studied and the profile obtained was associated with the coagulation coefficient and other structural elements of the cloud. Measurements were made of the radioactivity in the air inside and outside clouds by probing from aircraft; and a series of experimental radioactivity profiles were obtained. There is significantly less radioactivity in cloudy air than outside the cloud zone, but the value never decreases to zero, and the variation of the radioactivity concentration in the cloud is insignificant. This residual radioactivity is closely connected with the microphysical characteristics of clouds and depends on the magnitude of the coefficient of coagulation of cloud droplets with radioactive aerosols. Thus

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ACCESSION NR: AP4031103

it appeared possible to determine this coefficient of coagulation from the radioactivity profile in the cloud. Formulas were derived for determining the change of radioactivity in clouded air ( $N_s$  = the number of atoms formed by radon decomposition) according to the altitude:

$$N_s = \left[ N_{s,0} - \frac{\lambda_{Rn} N_{Rn,0}}{\lambda_s + kn - \alpha w} \right] e^{-\frac{\lambda_s + kn}{w} z} + \frac{\lambda_{Rn} N_{Rn,0}}{\lambda_s + kn - \alpha w} e^{-\alpha z}$$

and when  $\alpha = 0$ , i.e., when radon concentration is constant:

$$\dot{N}_s = \left[ N_{s,0} - \frac{\lambda_{Rn} N_{Rn,0}}{\lambda_s + kn} \right] e^{-\frac{\lambda_s + kn}{w} z} + \frac{\lambda_{Rn} N_{Rn,0}}{\lambda_s + kn}$$

where  $\lambda_s$  is the isotope decomposition constant;  $N_{Rn,z}$  is the concentration of radon in the cloud and  $N_{Rn,0}$  at the lower boundary of the cloud;  $w$  is the rate of vertical filtration of air through the cloud;  $z$  is the altitude;  $n$ , the concentration of the drops;  $\lambda_{Rn}$  is radon decomposition, and  $k$  is the coefficient of coagulation of drops with radioactive aerosols. The magnitude of the coefficient of coagulating radioactive aerosols with cloud drops is of the order of  $10^{-5}$  1/sec. Orig. art. has: 4 figures, 1 table and 8 equations.

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ACCESSION NR: AP4031103

ASSOCIATION: Institut geologii i geographii, akademii nauk Litovskoy SSR  
(Institute of Geology and Geography, Academy of Sciences, Lithuanian SSR)

SUBMITTED: 20Jul63

ENCL: 00

SUB CODE: ES

NR REF SOV: 005

OTHER: 000

Card

3/3

ACCESSION NR: AP4018352

S/0251/64/033/001/0061/0067

AUTHORS: Sty\*ro, B. I.; Vebra, E. I.; Shopauskas, K. K.; Khundzhua, T. G.

TITLE: On the coagulation of radioactive aerosols with cloud drops (Presented by A. M. Mirianashvili, corresponding member of the Academy on May 12, 1963)

SOURCE: AN GruzSSR. Soobshcheniya, v. 33, no. 1, 1964, 61-67

TOPIC TAGS: radioactive aerosol, cloud drop, coagulation coefficient, filtering system D2 O3 27 v, nuclear emulsion A 2, microscope system MBI 2, turbulent mixing, Brownian motion

ABSTRACT: A new experimental method is presented for determining the coagulation of radioactive aerosols with cloud drops. For measuring the radioactivity in the atmosphere an intake nozzle was installed above the overhead port of an aircraft at a distance of 0.5 m from the fuselage along the direction of motion of the aircraft. The air was filtered by a D-2-O3-27v system, using fiber filters. The system was so designed that the drops could not percolate into the filter (this was checked by using orythrozone). During the test flight 1 cubic meter of air was inducted in 6 minutes. The filter was then removed and brought in contact with nuclear photoemulsion of type A-2. After 20 hours of exposure, the system

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ACCESSION NR: AP4018352

was examined under a microscope of type MBI-2. The coefficient of coagulation was computed from the results to be on the order of  $10^{-5}$  to  $10^{-4}$  per second. The half-period of nonradioactive removal of aerosol was computed to be 1 to 2 minutes. Orig. art. has: 3 figures, 1 table, and 7 formulas.

ASSOCIATION: Akademiya nauk Gruzinskoy SSR, Institut geofiziki (Academy of Sciences Georgian SSR, Institute of Geophysics)

SUBMITTED: 12May63

DATE ACQ: 19Mar64

ENCL: 00

SUB CODE: ES

NO REF SOV: 008

OTHER: 002

Card 2/2



STYRO, B.I.; VEBRA, E.Yu.; SHOPAUSKAS, K.K.

Some physical characteristics of hot alpha-radioactive  
aerosols. Atom. energ. 16 no.6:528-530 Je '64. (MIRA 17:7)

L 3106-66 EWT(1)/ENT(m)/FCC/EWA(h) GS/GA

ACCESSION NR: AT5023938

UR/0000/65/000/000/0207/0216

AUTHOR: Styro, B. I.; Vebra, E. Yu.; Shopauskas, K. K.

TITLE: Radioactivity, sizes, and composition of  $\alpha$ -radiating aerosols

SOURCE: Nauchnaya konferentsiya po yadernoy meteorologii. Obninsk, 1964. Radio-aktivnyye izotopy v atmosfere i ikh ispol'zovaniye v meteorologii (Radioactive isotopes in the atmosphere and their use in meteorology); doklady konferentsii. Moscow, Atomizdat, 1965, 207-216

TOPIC TAGS: nuclear meteorology, micrometeorology, atmospheric pollution, radio-active aerosol, hot particle, atmospheric boundary layer, temperature inversion

ABSTRACT: Basically, this paper is an elaboration of an earlier study of atmospheric samples originally collected at altitudes of 0-2 km over the Vilnius area (results published in Atomnaya energiya, no. 16, 1964), in which 20  $\alpha$ -radiating aerosol particles had been discovered. Reexamination of these samples revealed the presence of 42 additional particles of this type. These particles and one particle discovered in studying the radioactive fogs of 19 October 1963 were examined by microphotographic techniques to determine the sizes, composition, and degree of radioactivity. Orig. art. has: 5 figures and 1 table. [ER]

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L 3106-65

ACCESSION NR: AT5023938

ASSOCIATION: none

SUBMITTED: 28Apr65

NO REF SOV: 002

ENCL: 00

OTHER: 001

SUB CODE: ES, NP

ATD PRESS: 4101

PC

Card 2/2

ACC NR: AP6034790

SOURCE CODE: UR/0251/66/043/002/0327/0334

AUTHORS: Styro, B. I.; Vebra, E. Yu.; Shopauskas, K. K.; Khundzhua, T. G.

ORG: Institute of Geophysics, Academy of Sciences Georgian SSR (Institut geofiziki Akademiya nauk Gruzinskoy SSR)

TITLE: On the problem of determining the coefficient of turbulent diffusion along vertical concentration profiles of radon decay products

SOURCE: AN GruzSSR. Soobshcheniya, v. 43, no. 2, 1966, 327-334

TOPIC TAGS: atmospheric diffusion, radon, free atmosphere, atmospheric turbulence, alpha particle, nuclear emulsion, aircraft/ A-2 nuclear emulsion, LI-2 aircraft, YaK-12 aircraft

ABSTRACT: An experimental method for determining  $K_z$  along radioactivity profiles in the free atmosphere is described. For a layer of free atmosphere, it is assumed that the vertical distribution of the concentration of the  $i$ -th element of the radon chain is determined by solving a system of differential equations

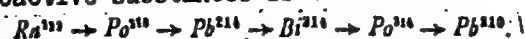
$$\frac{d}{dz} \left( K_z \frac{dN_i}{dz} \right) - \lambda_i N_i = 0,$$

$$\frac{d}{dz} \left( K_z \frac{dN_i}{dz} \right) - \lambda_i N_i + \lambda_{i-1} N_{i-1} = 0.$$

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ACC NR: AP6034790

The following chain of radioactive substances is considered:



Equations describing the profiles of the distribution of radon and three of its decay products are obtained:

$$N_i = \lambda_1 N_{1,h} \sum_{k=1}^{\gamma} \frac{\prod_{l=1}^{\gamma-1} \lambda_l}{\lambda_i \prod_{l=1}^{i-1} (\lambda_k - \lambda_l) \prod_{l=i+1}^{\gamma} (\lambda_k - \lambda_l)} \exp \left\{ - \sqrt{\frac{\lambda_i}{K_s}} (\tau - h) \right\}$$

$\gamma = 1, 2, 3, 4$

In the experimental part, the free atmosphere is obtained by filtering air through fibrous materials. A-2 nuclear emulsion is used as the detector. The atmosphere was sounded in the areas of Tbilisi and Vilnius with LI-2 and YaK-12 aircraft. The radioactivity was measured according to the number of alpha tracks/cm<sup>2</sup> of emulsion (see Fig. 1). The advantages of the method are simplicity and high sensitivity. This paper was presented by Academician F. F. Davitaya on 06 November 1965.

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ACC NR: AP6034790

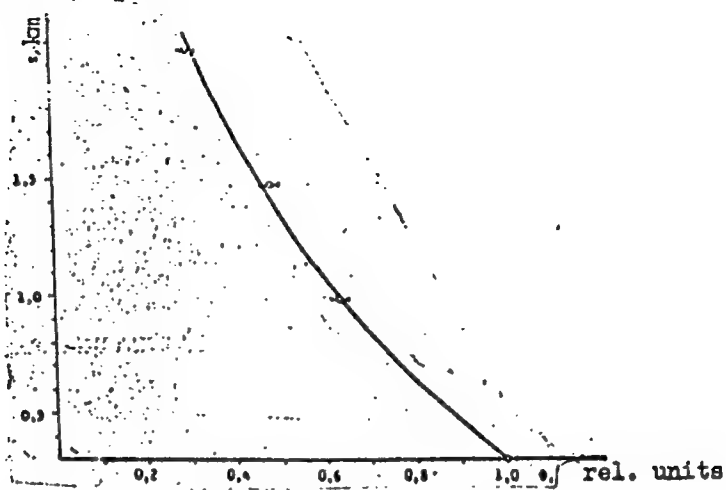


Fig. 1. Experimental curve of decrease in radioactivity with altitude (27 July 1962)

Orig. art. has: 12 formulas, 3 graphs, and 1 table.

SUB CODE: 20, 18, 04/ SUBM DATE: 06Nov65/ ORIG REF: 008/ OTH REF: 003

Card 3/3

STYRO, B.I.; VEBRA, E.Yu.; SHOPAUSKAS, K.K.

Determination of some parameters of the removal of natural  
radioactive aerosols from the air. Izv. AN SSSR. Fiz. atm.  
i okeana 1 no.12:1299-1309 D '65. (MIRA 19:1)

1. Submitted June 12, 1965.

ACCESSION NR: AP4041454

S/0089/64/016/006/0528/0530

AUTHORS: Sty\*ro, B. I.; Vebra, E. Yu.; Shopauskas, K. K.

TITLE: On some physical characteristics of hot Alpha-active aerosol particles

SOURCE: Atomnaya energiya, v. 16, no. 6, 1964, 528-530

TOPIC TAGS: aerosol, fallout, alpha contamination, radon, neptunium

ABSTRACT: The characteristics of about 20  $\alpha$ -active hot aerosol particles found in samples gathered near Vil'nyus at altitudes 0--3 km are described. The particles are characterized by "fans" of alpha tracks. The fan tracks corresponding to the highest energies are probably the daughter products of radon decay or some products of the neptunium family. The activity of the hot particles was determined from the number of tracks, and the dimensions could be determined by making certain assumptions relative to the particle isotopic composition.

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ACCESSION NR: AP4041454

tion. The few actually measured particle sizes lie between the values obtained when the fan is assumed to be produced by  $U^{235}$  and  $Pu^{239}$  respectively. It can therefore be concluded that the hot aerosol particles are not uniform and consist of isotopes such as  $U^{235}$ ,  $U^{238}$ ,  $Th^{232}$ , and  $Pu^{239}$ . It is concluded that their isotopic composition needs further study. Orig. art. has: 3 figures, 2 formulas, and 1 table.

ASSOCIATION: None

SUBMITTED: 05Aug63

ENCL: 01

SUB CODE: NP, CB

NR REF SOV: 002

OTHER: 002

Cont 2/3

ACCESSION NR: AP4041454

ENCLOSURE: 01

Some properties of hot alpha-active aerosol particles

Legend:

- 1 - particle no.
- 2 - sampling flight altitude
- 3 - exposure, hr
- 4 - number of alpha tracks in fan
- 5 - activity, Ci
- 6 - dia. of act. part., microns
- 7 - measured
- 8 - calc. from U-235 radiation
- 9 - calc. from Pu-239 radiation
- 10 - ground level

1 Номер частицы	2 Высота полета при отборе пробы, м	3 Продолжительность наблюдения, ч	4 Число alpha-треков в розе	5 Активность, кюри	6 Диаметр активной части частицы		
					7 измеренный	8 расчитанный по альфа-излучению	9 по гамма-излучению
1	1000	39,3	688	$2,6 \cdot 10^{-13}$	12	22,0	
2	1000	74	161	$3,3 \cdot 10^{-14}$	8	11,6	
3	1000	74	38	$7,8 \cdot 10^{-15}$	4	7,0	
4	1000	235	37	$2,4 \cdot 10^{-15}$	—	4,8	
5	1000	235	26	$1,7 \cdot 10^{-15}$	—	4,2	
6	1000	235	17	$1,1 \cdot 10^{-15}$	—	3,7	
7	1000	235	12	$7,7 \cdot 10^{-16}$	—	3,3	
8	1000	235	10	$6,4 \cdot 10^{-16}$	—	3,1	
9	1000	235	8	$5,1 \cdot 10^{-16}$	—	2,9	
10	1000	235	6	$3,8 \cdot 10^{-16}$	—	2,6	
11	1000	235	10	$6,4 \cdot 10^{-16}$	—	3,1	
12	1000	235	5	$3,2 \cdot 10^{-16}$	—	2,5	
13	870	240	400	$2,5 \cdot 10^{-14}$	7	10,6	
14	870	240	350	$2,2 \cdot 10^{-14}$	—	10,1	
15	870	240	20	$1,8 \cdot 10^{-15}$	—	4,4	
16	870	240	22	$1,4 \cdot 10^{-15}$	—	4,0	
17	870	240	7	$4,4 \cdot 10^{-16}$	—	2,7	
18		240	16	$1,0 \cdot 10^{-15}$	—	3,6	
19	на уровне земли	240	400	$2,5 \cdot 10^{-14}$	—	10,6	
20	10	240	5	$3,1 \cdot 10^{-16}$	—	2,4	

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1 18499-66 ENT(1)/ENT(a)/FCC/ENA(a) CW  
 Acc NR: RP6011119

SOURCE CODE: UR/0362/65/001/012/1299/1309

AUTHOR: Styro, B. I.--Styra, B. J.; Vebra, E. Yu.--Vebra, E. J.; Shopauskas, K. K.

ORG: none

TITLE: Determination of some parameters of removal of natural radioactive aerosols from the air

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 1, no. 12, 1965, 1299-1309

TOPIC TAGS: atmospheric radioactivity, atmospheric cloud, gas filter, radioactive aerosol

ABSTRACT: The authors describe a method for measuring the radioactivity of air in the free atmosphere and within cloud systems by its filtration through porous filters and the screening of drops. The actual method was described in a previous paper by the author (Tr. AN LitSSR, Seriya B, 1(36), 1964). The authors have developed the theory of the experiment and derived formulas for computing the parameter of nonradioactive removal  $\Lambda$  of radioactive aerosols in cloud droplets. Two methods are proposed for determining  $\Lambda$ : on the basis of the profile of the concentration of radioactive substances in the air in a cloud and outside it and on the basis of disruption of radioactive equilibrium between the daughter products of radon decay in the cloud zone. On the basis of  $\Lambda$  and data in the literature on the drop concentration in a cloud the authors have computed the value of the coagulation coefficient  $K$  of radioactive

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UDC: 551.510.721

L 18899-66

ACC NR: AP6011119

aerosols on droplets, which on the average is equal to  $3 \cdot 10^{-6}$  cm<sup>3</sup>/sec.  
One shortcoming of the study is the assumption that the processes in the cloud zone are stationary, but at present this formulation is necessary.  
Orig. art. has: 4 figures, 21 formulas, and 1 table. [JPRS]

SUB CODE: 18, 04 / SUBM DATE: 12Jun65 / ORIG REF: 009 / OTH REF: 002

Card 2/2 mc.

VEBRAS, E.A.

Scientific work of D.A. Gol'dgammer. Ist. i metod. est. nauk  
2:286-297 '63. (MIRA 16:11)

VEERAS, E.A.

From the history of the development in Russia of the electro-  
magnetic theory of light (works of D.A.Gol'dammer). Nauch.  
trudy Tul.gor.inst. no.3:180-193 '61. (MIRA 16:4)  
(Electromagnetic theory)

ACC NR: AP6034772 (A) SOURCE CODE: UR/0362/66/002/010/1055/1063

AUTHOR: Styro, B. I.; Vebrene, B. K.

ORG: none

TITLE: Preliminary results and methods of measuring radioactivity of particles of precipitation

SOURCE: AN SSSR. Izvestiya. Fizika atmosfery i okeana, v. 2, no. 10, 1966, 1055-1063

TOPIC TAGS: radioactivity, <sup>measurement</sup> ~~meteorology~~, evaporation rate, ~~particles~~, ~~precipitation~~ rain, snow, ~~radioactive fallout~~, ~~atmospheric radioactivity~~

ABSTRACT: This article describes the method of measuring the radioactivity of raindrops and snowflakes by capturing them on polished steel plates or chromatographic filter paper with subsequent contact with an emulsion. The number of nonradioactive raindrops during a continuous rain, based on a computed measurement angle of  $2\pi$  was found to be equal to 30—40% of the total number of raindrops. The radioactivity of individual raindrops generally increases with size with the rate of increase leveling off. It is shown that the specific radioactivity of raindrops increases exponentially with decreasing

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UDC: 551.510.7

ACC NR: AP6034772

droplet size. Based on this, a computation of the mean value of the relative rate of evaporation of raindrops falling to the earth's surface is made possible. Orig. art. has: 3 figures, 3 tables, and 8 formulas.

SUB CODE: 04/18/ SUBM DATE: 26Feb66/ ORIG REF: 009/ OTH REF: 004

Card 2/2



LAZAROIU, D.F., ing.; UDRESCU, Petre; VECAS, Alexandru; RADU, Emilia; CARACASIAN, E., ing.; BANDI, Fr.; TAIGAR, S., ing.

Present problems on establishing labor norms. Probleme econ 17 no.7: 151-156 J1 '64.

1. Direktor, "Electronica" Plant, Bucharest (for Lazaroiu).
2. Director, Iprofil Bucharest (for Udrescu).
3. Head of the Department of Labor Organization, Iprofil Bucharest (for Vecas).
4. Director, "Rascoala din 1907" Textile Enterprise, Bucharest (for Radu).
5. Chief Engineer, "Rascoala din 1907" Textile Enterprise, Bucharest (for Caracasian).
6. Director, "Bucuresti" Glass Factory (for Bandi).
7. Chairman of the State Committee for Labor and Wage Problems (for Taigar).

VECEK, Ales, inz.

Opening of a heat glazed glass factory in the United States.  
Skalr a keramik 14 no.8:236 Ag '64.

VECEK, B.; VOSTATEK, M.

Carbon dioxide. Zvaranie 12 no.1:11-13 Ja '63.

1. Technoplyn, n.p., Praha (for Vecek). 2. Vychodoceske chemicke zavody Synthesia, n.p., Pardubice - Semtin (for Vostatek).

VECERA, M.; JURECEK, M.

"Identification of organic substances. III. Studies on alkyl thiuronium salts", P. 722., (CHEMICKÉ LISTY, Vol. 46, No. 12, Dec. 1952, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, (EEAL) LC, Vol. 4, No. 6, June 1955, Uncl.

The action of the Grignard agents on the amide group.  
 XVIII. Isomerism of pyrrolines. Rudolf Lukes and Miroslav Vozel (Vysoká škola chem., Prague, Czech.). *Chem. Listy*, 54:1-51 (1959); cf. C.A. 47, 11133j. — A series of new 1-methyl-2,5-dialkyl-2-pyrrolines was prepd. from Grignard reagents and 1-methyl-2-alkyl-5-pyrrolidinone. The 3rd possible isomer of 1,2-dimethyl-5-ethylpyrrolidine was prepd. by the reduction of the corresponding pyrrole with Zn and AcOH. The pyrrolines were characterized as perchlorates and binary picrates. MeMgBr (0.5 mole) in 600 ml. ether as normal picrates. MeMgBr treated with 0.1 mole 1,2-dimethyl-5-pyrrolidinone in 100 ml. Et<sub>2</sub>O started to form a ppt. after 15 min. and a gas was evolved; after 12 hrs., the mixt. was treated with ice and solid Ba(OH)<sub>2</sub>, the liberated bases were steam distd., the distillate was neutralized with 85 ml. N HCl, the soln. evaporated to a syrup, in vacuo, the residue treated with 9.1 g. NaClO<sub>4</sub> in 15 ml. H<sub>2</sub>O giving 5.3 g. HClO<sub>4</sub> salt of 1,2,5-trimethyl-2-pyrroline (I), m. 217-18° (from EtOH); binary picrate, m. 203.5-4° (from H<sub>2</sub>O); H<sub>2</sub>PtCl<sub>6</sub> salt, m. 196° (decompn.) (from 80% EtOH acidified with HCl). From the mother liquors after the sepn. of the perchlorate of I was isolated, 1,2,2,5-tetramethylpyrrolidine picrate, m. 224-6° (decompn.) (from EtOH). Similarly 34 g. 1,2-dimethyl-5-pyrrolidinone and EtMgBr gave 38 g. of the 1,5-dimethyl-2-ethyl-2-pyrroline-

HClO<sub>4</sub>, m. 223-4°; free base (II), liberated from the HClO<sub>4</sub> salt, b. 98-101° (in H stream), d<sub>4</sub> 0.8623, n<sub>D</sub> 1.4756; binary picrate, m. 173.5-8° (from H<sub>2</sub>O); H<sub>2</sub>PtCl<sub>6</sub> salt, m. 194° (decompn.) (from 80% EtOH); H<sub>2</sub>AuCl<sub>4</sub> salt, m. 83° (from EtOH). 1,5-Dimethyl-2,2-diethylpyrrolidine, b. 107-8°, d<sub>4</sub> 0.8437, n<sub>D</sub> 1.4100, was obtained as a picrate, m. 142-3.5° (from H<sub>2</sub>O), from the mother liquors after the sepn. of HClO<sub>4</sub>. 1,2-Dimethyl-5-pyrrolidinone and PrMgBr gave 1,5-dimethyl-2-propyl-2-pyrroline HClO<sub>4</sub> salt, m. 117-18° (from EtOH); binary picrate, m. 105-6° (from H<sub>2</sub>O); H<sub>2</sub>PtCl<sub>6</sub> salt, m. 183°. 1,5-Dimethyl-2,2-dipropylpyrrolidine, from the mother liquor, gave a picrate, m. 119-20.5°. The normal method for the prepn. of 1,2-dimethyl-5-ethyl-2-pyrroline (III) gave a poor yield and was therefore changed. 1-Methyl-2-ethyl-5-pyrrolidinone (0.15 mole) in 100 ml. Et<sub>2</sub>O dropped into a boiling soln. of 0.3 mole MeMgBr in 600 ml. Et<sub>2</sub>O, the mixt. boiled 2 hrs., decompd. with ice, acidified with HCl, the neutral portions steam distd., the residue alkalinized with 50% NaOH, the bases liberated, steam distd., and the distillate neutralized with 100 ml. N HCl, evaporated in vacuo, and treated with NaClO<sub>4</sub> pptd. 18 g. (63%) III. HClO<sub>4</sub>, m. 117.5-118°; free base, b. 95-8°, d<sub>4</sub> 0.9185, n<sub>D</sub> 1.6007; binary picrate, m. 18°; H<sub>2</sub>AuCl<sub>4</sub> salt, m. 123°. 1,2,5-Tri-methyl-5-ethylpyrrolidine (from the mother liquor of the less successful prepn.) gave a picrate, m. 133°. 1-Methyl-2-ethyl-5-pyrrolidinone and EtMgBr gave 1-methyl-2,5-

(over.)

Rudolf Lukes

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diethyl-2-pyrrolone (IV); perchlorate, m. 127-8°;  $H_2PtCl_6$  salt, m. 194° (decompn.). The binary picrate ( $C_{12}H_{10}O_6N_2Na$ ) (IVa) of IV was prepd. 1-Methyl-3,3,5-triethylpyrrolidine (from the mother liquors) picrate m. 95-8°. 1-Methyl-2-ethyl-5-pyrrolidinone and  $PrMgBr$  gave only a small amt. of 1-methyl-5-ethyl-2,2-dipropylpyrrolidine; picrate, m. 129-8.5°. 1-Methyl-2-ethyl-5-pyrrolidinone and  $PhMgBr$  gave perchlorate of 1-methyl-5-ethyl-2-phenyl-2-pyrrolone- $HClO_4$ , m. 138°; picrate, m. 83° (from dil.  $EtOH$ ). 1-Methyl-2-phenyl-5-pyrrolidinone and  $EtMgBr$  gave 1-methyl-2-ethyl-5-phenyl-2-pyrrolone; picrate m. 124-5°. 1,2-Dimethyl-5-ethylpyrrole (8.6 g.) was reduced with 10 g. Zn in 30 ml.  $H_2O$  to which  $HCl$  was added gradually; steam distn. and treatment of the distillate with 16 g. Na picrate gave the normal picrate, m. 147-8° (from  $EtOH$ ), and binary picrate, m. 180-7° (from  $EtOH$ ), of 1,2-dimethyl-5-ethyl-3-pyrrolone; free base, bp 45-50°,  $d_{20} 0.8101$ ,  $n_D^{20} 1.4570$ ; perchlorate, m. 215°;  $H_2PtCl_6$  salt, m. 173° (decompn.). Similar reduction of 1-methyl-2,5-diethylpyrrole with Zn and  $HCl$  yielded, at 40°, after treatment with Na picrate, a normal picrate, m. 110-11°, and a binary picrate, m. 185°, giving no depression with IVa. Also in Collection Czechoslov. Chem. Commun. 19, 263-71 (1954) (in German). M. Hudlický—

VECEA, M.

1. The main purpose of the determination  
of nitrogen in organic compounds according to  
Dumas and microanalysis is to determine the  
percentage of nitrogen in the compound.  
The method is based on the combustion of the  
compound in a stream of oxygen, the nitrogen  
being converted into nitrogen gas, which is  
then measured by its volume or by its weight.  
The method is applicable to all organic compounds  
containing nitrogen, and is particularly useful  
for the determination of nitrogen in  
nitrogenous organic compounds.

Večera, Miroslav

6

Identification of organic compounds. V. Reaction rate of halogen derivatives with thiourea. Miroslav Večera and Miroslav Jureček (Výzkumný ústav pro syntet. Pardu- bice-Rybitví, Czech.). *Chem. Listy* 47, 1342-7 (1953); cf. *C.A.* 48, 3291k. The rate of interaction of organic halides with thiourea was followed by measuring the cond. of the 0.1M solns. of halides and CS(NH<sub>2</sub>)<sub>2</sub> in Me<sub>2</sub>CO. Since the reactivity of a halogen depends on the nature and type of linkage of the halogen; and determines the rate of inter- change with CS(NH<sub>2</sub>)<sub>2</sub> which causes the increase of cond., it is possible, by means of the cond. measurements, to est. the nature and type of halogens. Specific cond. (in 10<sup>-1</sup> D<sup>-1</sup> cm.<sup>-1</sup>) at 60° after 3 hrs. of the reaction mixt. in 0.05M solns. in acetone of org. halides with 0.05M CS(NH<sub>2</sub>)<sub>2</sub> given: MeI 13000, CH<sub>3</sub>CHCH<sub>2</sub>Br 4100, PhCH<sub>2</sub>Br 3800, CH<sub>3</sub>I 3700, Br(CH<sub>2</sub>)<sub>2</sub>Br 1000, EtBr 1400, C<sub>2</sub>H<sub>5</sub>Br 1200, PrBr 1240, C<sub>2</sub>H<sub>5</sub>Br 1200, BuBr 1150, Br(CH<sub>2</sub>)<sub>2</sub>Br 700, iso-BuBr 680, *tert*-BuBr 540, 2,4-(O<sub>2</sub>N)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>Cl 510, *sec*-BuBr 370, *p*-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>Cl 40, PhBr 30, *m*-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>Cl 20, *o*-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>Cl 20. VI. Identification of organic sulfides. M. Jureček, M. Večera, and J. Casparik. *Ibid.* 4410. A method for the identification of org. sulfides is devised using the reaction of the sulfide with *p*-BrC<sub>6</sub>H<sub>4</sub>COCH<sub>2</sub>Br (I), and the trans- formation of the sulfonium bromide to less sol. HClO<sub>4</sub> salt. Refluxing 0.03 mole Et<sub>2</sub>S (b.p. 62°) and 0.03 mole I in 30 ml. MeOH 1 hr. gave *p*-BrC<sub>6</sub>H<sub>4</sub>COCH<sub>2</sub>SEt<sub>2</sub><sup>+</sup>Br<sup>-</sup>, m. 114° (from MeOH) which was transformed into the HClO<sub>4</sub> salt, m. 172° (from EtOH). Similarly was prepd. from Bu<sub>2</sub>S (b.p. 65°), *p*-BrC<sub>6</sub>H<sub>4</sub>COCH<sub>2</sub>SEt<sub>2</sub><sup>+</sup>Br<sup>-</sup>, m. 66-6.5°; HClO<sub>4</sub> salt, m. 129°. M. Hudlíček



VECHRA, M.; GASPARIC, J.

Analysis of drugs. Cesk. farm. 2 no.10-11:368-381 Nov 1953.

(CML 25:5)

1. Of the Research Institute of Organic Syntheses, Pradubice-Rybitvi.

VECERA, M.

LUKES, R.; VECERA, M.

Leukart's reaction of some ketone acids and their derivatives. Part 2.  
[in German with summary in Russian]. Sbor. Chekh. khim. rab. 18 no. 2: 243-247  
Ap '53. (MLRA 7:6)

1. Institut obshchey organicheskoy khimii Prazhskogo Politekhnicheskogo  
instituta. (Ketone acids)

LECERA MIROSLAV

Identification of organic compounds  
tion of sulfides. Miroslav Jurek  
In: Carnacki (Vladislav Skoln)  
Chem. Zvesti 45, 842-84 (1954).  
48. The methyl sulfides were  
transformation to bromides.  
again were transformed to penta-  
suitability of the salts for identification of the same  
in the order given. Best yields of the bromides were  
obtained by refluxing 10-30 min. in a solution of conc. HBr  
H<sub>2</sub>COC(16)Br and 0.01 g. of CuBr<sub>2</sub>. After addition of 48-OH on a  
steam bath, adding 200 ml. of water, and stirring for 1 hr.,  
stand 30 min. in an ice box. The precipitate was pptd. from  
an aq. soln. of the bromides with satd. aq. soln. of picric  
acid, the HClO<sub>4</sub> salts by pptg. the bromides with 10% aq.  
NaClO<sub>4</sub>. The necessary sulfides were prepd. as follows:  
48 g. BuBr, 25.5 g. C<sub>2</sub>S(NH<sub>4</sub>)<sub>2</sub>, and 50 ml. MeOH were re-  
fluxed 6 hrs., the MeOH was distd. off from the steam bath,  
the residue was dild. with H<sub>2</sub>O to 80-100 ml., and the soln.  
was heated to the b.p., treated with 20 g. NaOH in 150 ml.  
H<sub>2</sub>O, and boiled 15 min. The mercaptan layer deposited

after cooling was dissolved by adding concd. aq. contg.  
17 g. NaOH; the mixt. was heated to b.p., treated with  
60 g. H<sub>2</sub>O, re-distilled 3 hrs. The residue was sepd.  
washed w/ water, dried at 80°C. over P<sub>2</sub>O<sub>5</sub>, redistilled.  
Yield 28.4 g. (90%). Boiling point 122-123°C./mm. n<sub>D</sub><sup>20</sup> 1.417.  
SMellR 17.5. IR 1715 cm<sup>-1</sup>. Lit. n<sub>D</sub><sup>20</sup> 1.417.  
from EtOAc. Yield 1.5 g. (10%). Boiling point 122-123°C./mm.  
n<sub>D</sub><sup>20</sup> 1.417. SMellR 17.5. IR 1715 cm<sup>-1</sup>.

VECERA, H.

# CZECH

Colorimetric determination of small amounts of hydrate-  
benzene. Michal Veecha and Jaromir Petránek (Vez-  
benzene, Pardubice-Rybitví, Czech.).  
Chem. Listy 48, 1351-3 (1954).—A method for detg. small  
quantities of PhNH<sub>2</sub> (I) is based on its rearrangement to  
benzidine, and on the colorimetric detn. of the products of  
coupling the diazotized benzidine with *N*-1-naphthylethyl-  
enediamine (II). A sample contg. 1-5 mg. I is allowed to  
stand with 20 ml. EtOH and 10 ml. concd. HCl for 90 min.  
at room temp., then diazotized with NaNO<sub>2</sub> in a HCl soln.  
the mixt. treated after 5 min. with sulfamic acid, after 4  
min. with a soln. contg. 0.272 g. di-HCl salt of H<sub>2</sub>N 260 ml.  
H<sub>2</sub>O, filled to the mark in a 250-ml. volumetric flask, and  
measured after 60 min. M. Kudlický

VECERA, M.

95. Identification of organic compounds. III.  
Alkylthiuronium salts M. Jureček and M. Vecera  
(*Coll. Czech. Chem. Comm.*, 1954, 19 (1), 77-84)

Various alkylthiuronium salts are investigated for  
the identification of alkyl and halogenoalkyl groups

attached to O or N. The unknown substance is  
heated with III; the alkyl iodide formed is  
characterised by conversion to the thiuronium  
iodide and thence to its pierate (*cf. Chem. Listy*,  
1951, 45, 149 and 150) or another salt. 3:5-Dinitro-  
benzoates are now recommended on account of their  
lower solubility in alcohol. Other salts examined  
include styphnates, picrolonates, toluene-*p*-sulphon-  
ates, oxalates, nitrates and perchlorates. [This is a  
translation into German of a paper that appeared  
in *Chem. Listy*, 1952, 46, 722.] D. R. GLASSON

MA-25

LUKES, R.: VECERA, M.

Effect of Grignard reagents on the amide group. Part 18. Isomery of  
pyrroline [in German with summary in Russian]. Sbor. Chekh,khim.rab.  
19 no.2:263-274 Ap '54. (MLRA 7:6)

1. Institut obshchey eksperimental'noy organicheskoy khimii Prashskogo  
Politekhnicheskogo instituta.  
(Grignard reagents) (Pyrroline) (Isomerism)

VECERA, M.; JURECK, M.

Identification of Organic Compounds. II. Alkylthiuronium Salts. p. 77,  
(COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS. SBOŘENÍ CHEMOSLOVAT-  
SKIKH KHMICHESKIKH RABOT, Vol. 19, No. 1, Feb. 1954, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, (EPA), LC, Vol. 4  
No. 5, May 1955, Uncl.

VECERA, M.; LUKES, R.

"Effect of Grignard Reagents on the Amide group.XVIII. Isomery of Pyrroline." p. 263. (COLLECTION OF CZECHOSLOVAK CHEMICAL COMMUNICATIONS. SBORNIK CHEKOSLOVATSKIKH KHEMICHESKIKH RABOT. Vol. 19, No. 2, Apr. 1954; Praha, Czech.)

So: Monthly List of East European Accessions, (EAL), LC, Vol. 4, No. 4, April 1955, Uncl..



VEČERA, M.

CZECH

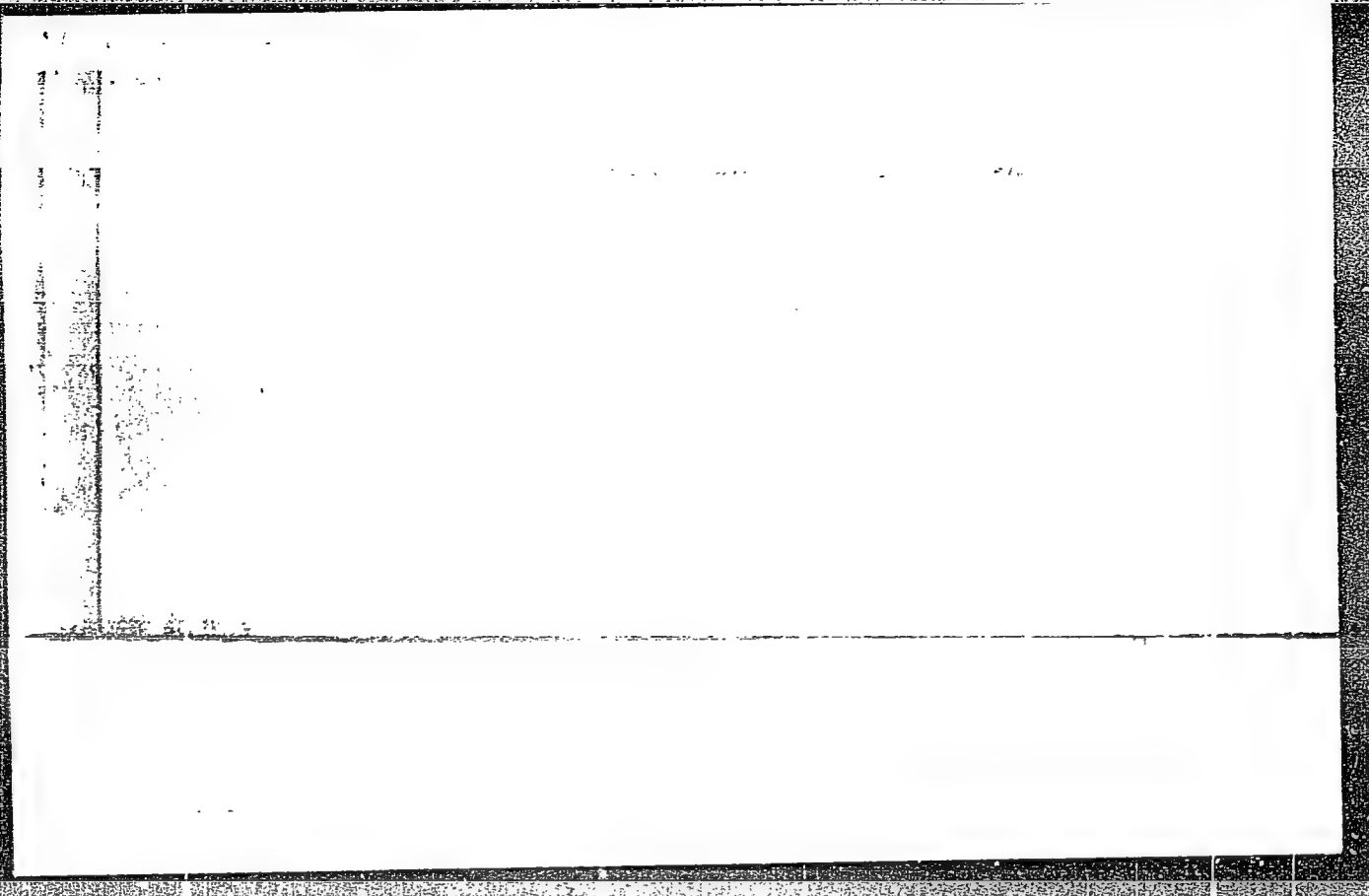
Chromatography of dye intermediates. III. Identification and separation of anthraquinonesulfonic acids by paper chromatography. Miroslav Večera, Jiří Gasparič, and Jiří Borecký (Vězkumny - syn. - syn. Pardubice - Bydžov, Czech.). Chem. Listy 49, 700-8 (1955); cf. 49, 619b.—Identification of isomeric anthraquinonesulfonic and -disulfonic acids, tests for purity of tech. products, and the course of the sulfonation processes are possible by means of chromatography on paper (Whatman no. 4) with BuOH-NH<sub>4</sub>OH-H<sub>2</sub>O 2:1:1 (I) or BuOH-C<sub>2</sub>H<sub>5</sub>N-H<sub>2</sub>O 3:1:1 (II) as solvents. Detection was carried out by fluorescence in ultraviolet light. *R<sub>f</sub>* values in systems I and II at 21° are given for the following anthraquinonesulfonic and -disulfonic acids: 1 (0.65, 0.57); 2, (0.78, 0.72); 1,5 (0.04, 0.07); 1,6 (0.09, 0.15); 1,7 (0.14, 0.19); 1,8 (0.26, 0.35); 2,6 (0.19, 0.29), 2,7 (0.19, 0.29). M. Hudlický

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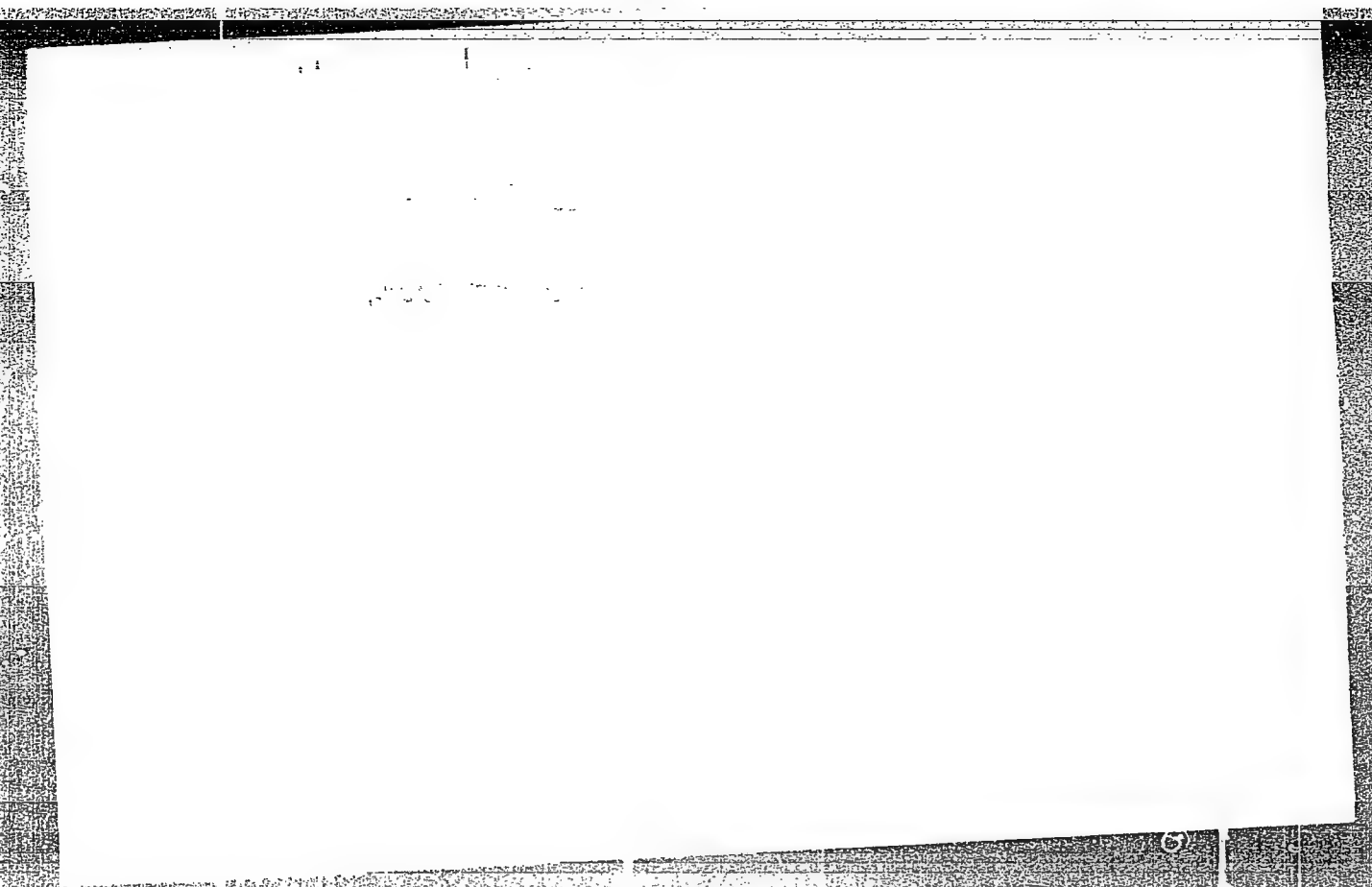
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IMPORTANT VETERA

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1600111.  
Czechoslovakia/Analytical Chemistry - Analysis of Organic Substances, G-3

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1280

Author: Vecera, M., and Petranek, J.

Institution: None

Title: Identification of Organic Substances. X. Identification of Sulfides

Original  
Periodical: Chem. listy, 1956, Vol 50, No 2, 240-245 (published in Czech); Sb. chekhosl. khim. rabot, 1956, Vol 21, No 4, 912-919 (published in German with a summary in Russian)

Abstract: During the investigation of the derivatives of thioethers, the properties of the sulphyliumines (I) prepared by the reaction of organic sulfides (II) with the sodium salt of N-chloro-p-toluenesulfonamide (chloramine T) (III). The effect of the solvent and reaction time on the yield was studied with the type-substances, dibutylsulfide and dibenzylsulfide (IV). The greatest yields of I (75-87%) were achieved as follows: 0.005 M solutions of II and III are mixed in 10 ml  $\text{CH}_3\text{OH}$ , the solvent is distilled off, and the residue washed with 5 ml of

Card 1/3



Czechoslovakia/Analytical Chemistry - Analysis of Organic Substances, G-3

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1280

Abstract: 2 N NaOH and 20 ml of water. The product is dissolved in 10 ml toluene over a water bath, filtered, and cyclohexane is added until the solution becomes turbid, after which it is allowed to stand for crystallization. Dibenzylsulfoxide and p-toluenesulfonamide are formed as side products during the reaction of IV with III. Compounds of I have also been prepared from the following II (the melting point and eutectic point (EP) with standard substances such as acetanilide (V), benzil (VI), phenacetin (VII) and cyanoguanidine (VIII), and the index of refraction of molten I (L. Kofler and A. Kofler, Mikromethoden zur Kennzeichnung organischer Stoffe und Stoffgemische, Innsbruck, Universitaetsverlag wagner, 1948) are given). For the determination of the eutectic point the substances were mixed in the ratio 1:1. Di-methylsulfide, mp 158.5-159°, EP with VII 116°, n<sub>D</sub><sup>20</sup> 1.5309; methyl-ethyl, mp 131.5-132.5°, EP with VII 106°, n<sub>D</sub><sup>20</sup> 1.5309; diethyl, mp 144.5-145.5°, EP with VII 109°, n<sub>D</sub><sup>20</sup> 1.5217; methyl-n-propyl, mp 104-105°, EP with VI 75°, EP with V 74°, n<sub>D</sub><sup>20</sup> 1.5309; methyl-isopropyl, mp 114-115.5°, EP with V 77°, n<sub>D</sub><sup>20</sup> 1.5309; methyl-n-butyl, mp 87-88°, EP with VI 68°, n<sub>D</sub><sup>20</sup> 1.5309; methylisobutyl, mp 120-121°, EP with V 81°, n<sub>D</sub><sup>20</sup> 1.5309.

Card 2/3

Czechoslovakia/Analytical Chemistry - Analysis of Organic Substances, G-3

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1280

Abstract: D 1.5217; ethyl-n-propyl, mp 104-105°, EP with VI 78°, EP with V 74°, n110-114° D 1.5309; ethylisopropyl, mp 116.5-117.5°, EP with V 75°, n140-141° D 1.5217; ethyl-n-butyl, mp 87-88°, EP with V 63°, EP with VI 67°, n92-95° D 1.5309; ethylisobutyl, mp 108-109°, EP with V 70°, n120-122° D 1.5217; di-n-propyl, mp 110-111.5°, EP with V 72°, n120-123° D 1.5217; n-propylisopropyl, mp 107-108°, EP with V 72°, n128-129° D 1.5217; diisopropyl, mp 117.5-118.5°, EP with V 76°, n132.5-134.5° D 1.5217; propylisobutyl, mp 99-100°, EP with VI 69°, EP with V 65°, n105-107.5° D 1.5217; isopropylisobutyl, mp 102-103°, EP with VI 73°, EP with V 70°, n108.5-110° D 1.5217; isopropyl-3-butyl, mp 96-97°, EP with VI 71.5°, EP with V 76°, n120-123° D 1.5217; di-n-butyl, mp 64°, EP with VI 51°, n86-88° D 1.5217; n-butyl-s-butyl, mp 75-76°, EP with VI 61°, n100-102° D 1.5217; diisobutyl, mp 133.5-134.5°, EP with VII 105°, n164-165° D 1.4953; isobutyl-s-butyl, mp 95-96°, EP with VII 73°, n112-114° D 1.5151; pentamethylene, mp 148.5-149°, EP with VII 109°, n172-174° D 1.5427; dibenzyl, mp 192-193°, EP with VIII 168°, n220-222° D 1.5309.

Card 3/3

VECERA, M.

VECERA, M. - Identification of organic substances. X. Identification of sulfides.  
p. 240, Vol. 50, no. 2, Feb. 1956  
CHEMICKÉ LISTY (Československá akademie věd. Chemický ústav)  
Praha, Czech.

SOURCE: East European Accessions List (EEAL) Vol 6 No 4 April 1957

Vecera, M.

CZECHOSLOVAKIA/Analytical Chemistry - Analysis of Organic  
Substances

G-3

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4830

Author : Vecera, M.

Title : Organic Quantitative Analysis. VI. Micro-Determination of  
Sulfur in Organic Substances

Orig Pub : Chem. listy, 1956, 50, No 2, 308-311

Abstract : The previously described method (RZhKhim, 1955, 2305,  
49236) has been improved. Use of a quartz combustion  
tube (Grote W., Krekeler H., Angew. Chemie, 1933, 46,  
106) with a quartz partition and two porous plates  
(temperature 700-750°) in lieu of a Pt catalyst, increa-  
ses substantially the speed of determination, since the  
rate of O<sub>2</sub> feed can be raised to 10-30 ml/minute, and at  
the same time combustion is complete with all types of  
substances and takes place evenly. Absorption of the  
oxides of sulfur is quantitative over the temperature

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CZECHOSLOVAKIA/Analytical Chemistry - Analysis of Organic  
Substances

G-3

Abs Jour : Referat Zhur - Khimiya, No 2, 1957, 4830

alum as an indicator, and with Complexon III.  
Ag wool also absorbs the halogens which may have a de-  
trimental effect. It is recommended to replace a por-  
tion of Ag wool by fresh one after 5 analyses of subs-  
tances containing halogens. Average error of determi-  
nation is 0.15, mean quadratic error is 0.19.

Communication V, see RZhKhim, 1956, 68776.

Card 3/3

- 54 -

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VEEPRE M

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V. C. C. P. D.

1/2

1. 1897 Organic quantitative analysis VIII. Micro-  
estimation of sulphur in organic compounds.  
Mechanism of formation of silver sulphate

to be in solution in the test  
2.3 sq. dm. combustion time 10 to 20 min. at  
velocity of the oxygen stream 10 to 20 ml per min

MT

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Večera, Miroslav

Separation and identification of the rearrangement products of hydrazobenzene. Miroslav Večera, Jiří Gasparič, and Jaromír Petránek (Výzkumný ústav org. syntézy, Pardubice-Rybitví, Czech.). Chem. listy 51, 1690-2 (1957); cf. C.A. 51, 14691b. —(PhNH)<sub>2</sub> (1.5 g.) mixed with 30 g. dry sea sand, exposed 72 hrs. to a stream of dry HCl, the mixt. made alk. with dry NH<sub>3</sub>, and the bases extd. with 75 ml. C<sub>6</sub>H<sub>6</sub> and chromatographed on Al<sub>2</sub>O<sub>3</sub> gave 80% of the following bases identified as the Bz derivs. (m.p., n<sub>D</sub>): benzidine, m. 308°, —; diphenylene, m. 280-2°, n<sub>D</sub><sup>20</sup> 1.5675, o-benzidine, m. 191-1.5°, n<sub>D</sub><sup>20</sup> 1.5714; o-semidine, m. 135-6°, n<sub>D</sub><sup>20</sup> 1.6064; and p-semidine, m. 166°, n<sub>D</sub><sup>20</sup> 1.6111. The mutual ratio of the bases was 1:1.25:1.08:0.84:0.09, resp. In addn., PhNH<sub>2</sub> and (PhN)<sub>2</sub> were found among the rearrangement products. M. Hudlický

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2 May  
4E 3d  
4E 2d(j)

RM

Distr: LE2c(j)

~~Organic quantitative analysis. XVII. Determination of small amounts of chlorine and bromine in organic compounds. Miroslav Vozna and Antonín Šolcák (Vězkunovský ústav org. syntézy, Pardubice, Czechia). Chem. listy 51, 240 (1957), cl. C.A. 52, 6510. —Combustion of an org. compd. in O<sub>2</sub> is carried out in a quartz tube and the HCl or HBr obtained by absorption of the gaseous products in H<sub>2</sub>O is det'd. colorimetrically by the reaction with Hg(SCN)<sub>2</sub> and Fe<sup>3+</sup>. The method is suitable for detg. 0.01-2% Cl or Br; as the percentage of halogens increases, the accuracy decreases. Ignite a 1-15 mg. sample in O<sub>2</sub> (15 ml./sec.) for 20-40 min., absorb the exit gases in 2 ml. 5% H<sub>2</sub>O<sub>2</sub>, add 2 ml. of a soln. contg. 0.3 g. Hg(SCN)<sub>2</sub> in 100 ml. warm MeOH, and 4 ml. of a soln. contg. 0 g. NH<sub>4</sub>Fe(SO<sub>4</sub>)<sub>2</sub> in 100 ml. 6N HNO<sub>3</sub>, dil. to 25 ml., and measure the absorption with a filter with max. transmittance at 470 mμ.~~

M. Hudlický

2-70-10

VECERA, M.

Identification of organic compounds. XXIV. Separation and identification of sulfides by paper chromatography. Jaromir Petránek and Miroslav Večeta (Výzk. ústav org. synth., Pardubice-Rybitví, Czechoslov.). Chem. listy 52, 1270-82 (1958); cf. C.A. 52, 13544b. — Org. sulfides may be separated and identified in the form of the *p*-nitrobenzenesulfonyl-sepd. and identified in the form of the *p*-nitrobenzenesulfonyl-sepd. (I) on paper impregnated with HCONH<sub>2</sub> using C<sub>6</sub>H<sub>6</sub> or C<sub>6</sub>H<sub>5</sub>-cyclohexane as the moving phase. *p*-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>SO<sub>2</sub>NH<sub>2</sub> (5 g.) is dissolved in 1 g. NaOH in 10 ml. H<sub>2</sub>O, the soln. cooled to 10° and, before the sulfonamide Na salt begins to sep., 17 ml. cool NaOCl soln. added (contg. 1.95 g. NaOCl and prepd. by passing 7 g. Cl into 8 g. NaOH in 10 ml. H<sub>2</sub>O and 30 g. ice). The *p*-nitrobenzenesulfochloramide Na salt (II) is filtered off and recrystd. from 5-6 ml. H<sub>2</sub>O to yield 6 g. yellow crystals contg. 23.5-5.3% active Cl and forming in H<sub>2</sub>O and EtOH intensely yellow colored solns. II (200 mg.) in 5 ml. MeOH is added to 0.5 milli-mole sulfide in 2 ml. MeOH, the mixt. allowed to stand 15 min., dild. with 20 ml. H<sub>2</sub>O, treated with 10 ml. 2N NaOH, extd. with CHCl<sub>3</sub>, the ext. (contg. 1-10 µg. I) chromatographed on Whatman No. 4 impregnated with 10% HCONH<sub>2</sub> in EtOH, the chromatogram sprayed with a freshly prepd. soln. of 0.7 g. SnCl<sub>4</sub> in 100 ml. 15% aq. HCl, and the spots detected (in a 30 min. interval) by spraying with 1% *p*-Me<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>CHO in EtOH contg. 5% aq. HCl. I form yellow spots. The following *R<sub>f</sub>* values of the *p*-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>SO<sub>2</sub>N:R<sub>f</sub> were found in C<sub>6</sub>H<sub>6</sub>, 3:2 C<sub>6</sub>H<sub>5</sub>:cyclohexane, and 1:1 C<sub>6</sub>H<sub>5</sub>:cyclohexane, resp. (R, R', *R<sub>f</sub>* values given): Me, Me, 0.08, 0.02, —; Me, Et, 0.21, 0.08, 0.01; Et, Et, 0.37, 0.19, 0.05; Et, Pr, 0.57, 0.35, 0.11; Pr, Pr, 0.73, 0.55, 0.24; iso-Pr, iso-Pr, 0.72, 0.63, —; Pr, iso-Pr, 0.73, 0.54, —; Et, iso-Bu, 0.72, 0.53, —; Bu, 0.74, 0.54, —; Pr, Bu, 0.83, 0.71, 0.40; Bu, Bu, —, 0.80, 0.57; iso-Am, iso-Am, —, 0.89, 0.75; Me, PhCH<sub>3</sub>, —, 0.18, —; Et, PhCH<sub>3</sub>, —, 0.33, —; Pr, PhCH<sub>3</sub>, —, 0.63, —; Bu, PhCH<sub>3</sub>, —, 0.69, —; PhCH<sub>3</sub>, PhCH<sub>3</sub>, —, 0.0, —; Ph, Ph, —, 0.86, —; Et, Ph, —, 0.66, —; Pr, Ph, —, 0.74, —; Et, *p*-tolyl, —, 0.74, —; Et, *o*-tolyl, —, 0.77, —.

XXV. Identification and separation of aliphatic C<sub>1</sub>-C<sub>11</sub> alcohols by paper chromatography. Jiří Borecký, Jiří Gasparic, and Miroslav Večeta. Ibid. 1283-B. — Aliphatic C<sub>1</sub>-C<sub>11</sub> alcs. and some cyclanols were successfully chromatographed as 3,5-dinitrobenzoates on Whatman No. 3 impregnated with 10% paraffin oil in cyclohexane. New systems of solvents contg. HCONH<sub>2</sub> (I) and HCONMe<sub>2</sub> (II) were used as the mobile phase. For preliminary information is recommended the system 18:4:4 II-MeOH-H<sub>2</sub>O where C<sub>1</sub>-C<sub>11</sub> alcs. are in the front and C<sub>12</sub>-<sub>18</sub> alcs. near the start. The following systems are suitable for given alcs.: 30:70 I-H<sub>2</sub>O, C<sub>1</sub>-C<sub>4</sub>; 50:50 I-H<sub>2</sub>O, C<sub>5</sub>-C<sub>6</sub>; 70:30 I-H<sub>2</sub>O, C<sub>7</sub>-C<sub>8</sub>; 1, C<sub>9</sub>-C<sub>11</sub>; 10:10:1 II-MeOH-H<sub>2</sub>O, C<sub>1</sub>-C<sub>11</sub>; 70:30 I-H<sub>2</sub>O, cyclanols C<sub>1</sub>-C<sub>7</sub>; 10:10:1 II-MeOH-H<sub>2</sub>O, cholesterol. The 3,5-dinitrobenzoates are prepd. by dissolving 0.1 g. alc. in 1 ml. C<sub>6</sub>H<sub>6</sub>, adding 0.5 g. 3,5-(O<sub>2</sub>N)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>COCl in 3 ml. C<sub>6</sub>H<sub>6</sub> and 1 ml. pyridine, heating 30 min. on a steam bath, letting cool, extg. with 50% KOH with addn. of H<sub>2</sub>O to achieve a quick sepn. of the layers, washing the C<sub>6</sub>H<sub>6</sub> ext. with portions H<sub>2</sub>O, 1:1 HCl, and H<sub>2</sub>O, and drying with Na<sub>2</sub>SO<sub>4</sub>. The C<sub>6</sub>H<sub>6</sub> soln. is used directly for chromatography. The method is also suitable for sepn. and identification of higher fatty alcs. used in the textile manuf.

Distr: 4E2c(j)

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/Rearrangement of aromatic hydrazo compounds. Miroslav  
Večeřa (Výzk. ústav org. synth., Pardubice-Rybitví,  
Czech.). *Chem. listy* 52, 1373-408(1958).—An extensive  
review in 19 chapters with 102 references. L.P.

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3  
7-May

Distr: 4E2c(j)

CZECHOSLOVAKIA/Optics - Optical Technology

K-4

Abs Jour : Ref Zhur - Fizika, No 9, 1958, No 21405

Author : Vecera M.

Inst : ~~Not Given~~

Title : Chronological Study of Anamorphotes

Orig Pub : Jomna meoh. a opt., 1957, 2, No 3, 75-78

Abstract : The author examines the properties of surface systems of anamorphote fittings and investigates in particular the dependence of the angular magnification on the angle of incidence of the ray and on the angle of the prism. A graphic method is proposed for determination of optimum angle between the prisms. The condition of parallelness is examined, and the dependence of the coefficient of anamorphotes on the angle of field of view is given.

Card : 1/1

VECERA, I.

Convention of analytic chemists in Cottwaldov.

p. 85 (Chemicky Prumysl. Vol. 7, no. 2, Feb. 1957, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) IC. Vol. 7, no. 2,  
February 1958

VECERA, M.; SNOBL, D.

"Organic quantitative analysis. VIII. Microdetermination of sulfur in organic compounds. Mechanism of the formation of silver sulfate. In German."

p. 986 (Collection of Czechoslovak Chemical Communications. Sbornik Chekhoslovatskikh Khimicheskikh Rabot.) Vol. 22, no. 3, June 1957.  
Prague, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,  
April 1958

011R15/4- V. C. C. C. A

CZECHOSLOVAKIA/Analytical Chemistry - Analysis of Organic Substances.

E-3

- Abs Jour : Ref Zhur - Khimiya, No 8, 1958, 24904
- Author : XIII. Vecera Miroslav, Friedrich Kurt  
XIV. ~~Gaspáric Jiri~~, Vecera Miroslav
- Inst : -
- Title : Identification of Organic Substances. XIII. Use of Ion-Exchangers in Organic Analysis. XIV. Separation and Identification of Aliphatic Aldehydes and Ketones by Means of Paper Chromatography.
- Orig Pub : Chem. listy, 1957, 51, No 2, 283-286, 291; Sb. chakhosl. khim. rabot, 1957, 22, No 5, 1421-1425, 1426-1431
- Abstract : XIII. Formation of a solution of an acid on interaction of the solution of the corresponding salt with a cathionite ( $K_m$ ) is used for determination of equivalence and molecular weight of organic acids and bases. First a difficultly soluble salt of the substance under study is

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CZECHOSLOVAKIA/A analytical Chemistry - Analysis of Organic  
Substances.

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Abs Jour : Ref Zhur - Khimiya, No 8, 1958, 24904

the form of solutions of their 2,4-dinitrophenyl hydrazones (DPH) in benzene, chloroform, alcohol or I. The chromatograms are developed with cyclohexane (II) saturated with I. After volatilization of II the chromatogram is sprayed with a 1% solution of NaOH in alcohol; DPH become apparent as brown, red or blue spots. It is possible to identify 1-5 micrograms DPH.  $R_f$  increases with the number of C-atoms in the n-chain; A and K with straight and branched chains have same  $R_f$  with equal n. The presence of double bonds and OH-groups lowers  $R_f$ . Part XII see RZhKhim. 1958, 14240.

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CZECHOSLOVAKIA / Analytical Chemistry. Analysis of Organic  
Substances.

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Abs Jour : Ref Zhur - Khim., No 10, 1958, No 32229

tic absorption curves in the visible spectrum range, which permits to detect V first of all, as well as IV by an indirect method. The absorption spectra in the ultraviolet range permit to identify I, II and III as bases and chlorohydrates in solutions. The powder x-ray pictures of I, II, III, IV and V chlorohydrates and aniline can be used for the identification of these substances. They can be identified also by the polarographic curves of their interaction with  $\text{HNO}_2$  diazonium salts of K, II and III, with  $\text{HNO}_2$  1-phenylbenzotriazole salt of IV and with nitrosodiazonium of V. See report XIV in RZhKhim, 1958, 24904.

Cord 2/2

CZECHOSLOVAKIA/Organic Chemistry Theoretical and General  
Questions on Organic Chemistry.

G-1

Abs Jour: Ref Zhur-Khim., No 13, 1958, 43212.

Author : Vecera Miroslav, Petranek Jaromir, Gasparic Jiri.

Inst :

Title : Rearrangement of Substituted Aromatic Hydrazo-  
Compounds.

Orig Pub: Chem. listy, 1957, 51, No 5, 911-919; Sb chekhosl.  
khim. rabot, 1957, 22, No 5, 1603-1612.

Abstract: A study of the rearrangement of hydrazo-benzene  
(I), 2- and 4-methyl-hydrazo-benzene (II, III), 2,2'-and  
4,4'-dimethyl-hydrazobenzene (IV, V), 4-acetamido-  
hydrazo-benzene (VI), N-acetyl-hydrazobenzene (VII)  
and 1,1'-hydrazo-naphthalene (VIII), by action of a  
solution of HCl in alcohol, or of dry HCl in absence

Card : 1/3

Questions on Organic Chemistry.

U-1

Abs Jour: Ref Zhur-Khim., No 13, 1958, 43212.

of a solvent, at about 20°. The rearrangement products (RP) were isolated by paper chromatography, purified by crystallization and also by chromatography on silica gel impregnated with dimethyl formamide, and were identified by color reactions and fluorescence reactions. Among the RP were found benzidine (IX), diphenylene (X), o-benzidine (XI), o-semidine (XII), p-semidine (XIII), the corresponding azo-compounds (Ia-VIIIa), aniline (XIV). Listing the initial substance and isolated RP: I, IX-XIV, Ia; II, IX-XIII, IIa; III, X-XIII, IIIa; IV, IX-XIII, IVa; V, XI, XII, XIV, Va; VI, XII-XIV, VIa; VII, IX, X; VIII, IX-XIV, VIIIa. Velocity of competing reactions, and proportions of

Card : 2/3

*Vesera, M.*  
9999 Organic quantitative analysis. IX. Micro-  
determination of sulphur in compounds containing  
nitrogen and sulfur. *7* *5*

the addition of base. The use of a temp. of  
1200° to 1300° have been found suitable.  
*J. Zita*  
*Ch. J. A.*





VECERA, M. : MLECKY, J.

"Identification of organic compounds. XVII. Identification of anthraquinonesulfonic acids."

p. 974 (Institute of Applied Physics - Czechoslovak Academy of Science)  
Vol. 51, No. 5, May 1957

SO: Monthly Index of East European Accession (EEAI) (LC, Vol. 7, No. 5, May 1958)



CZECHOSLOVAKIA/Analytical Chemistry. Analysis of Organic  
Substances.

E-3

Abs Jour: Ref Zhur-Khim , No 13, 1958, 43082.

Author : X. Vecera Miroslav, Dulusek Jaroslav.  
XI. Synek Ladislav, Vecera Miroslav.

Inst :

Title : Organic Quantitative Analysis. X. Micro-Determination  
of Chlorine and Bromine in Organic Substances. XI.  
Use of Cobalto-Cobaltic Oxide as Combustion Catalyst  
in Elementary Analysis.

Orig Pub: Chem. listy, 1957, 51, No 8, 1475-1481, 1551-1552;  
Collect. czechosl. chem. communis, 1958, 23, No 2, 257-264,  
331-333.

Abstract: X. 1-5 mg (determination of Cl) or 4-7 mg (determina-  
tion of Br) of the substance are used in the combustion

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CZECHOSLOVAKIA/Analytical Chemistry. Analysis of Organic Substances.

E-3

Abs Jour: Ref Zhur-Khim., No 13, 1958, 43082.

by the modified method of Grote and Krekeler, in a quartz tube 580 mm long and 9 mm inside diameter containing two porous quartz plates, in a current of  $O_2$  at  $750^\circ$ . If the substance contains alkali metal a tenfold amount of  $V_2O_5$  is added. Liquid substances are weighed in capillaries with  $NH_4NO_3$ . Combustion of the substance is effected within 5-15 minutes after which the tube heated for an additional 5 minutes. The halogen is absorbed as  $HCl$  ( $HBr$ ) in a U-vessel filled with glass beads and containing 5 ml of 5%  $H_2O_2$ . For determination of  $Cl^-$  the solution is neutralized first with 0.1 N and then with 0.01 N solution of  $NaOH$ , to a mixed indicator (0.1% alcohol solutions of methyl

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CZECHOSLOVAKIA/Analytical Chemistry. Analysis of Organic Substances.

E-3

Abs Jour: Ref Zhur-Khim., No 13, 1958, 43082.

red and methylene blue 3:1) which has a grey transition shade, 10 ml of freshly neutralized saturated solution of  $\text{HgO} \cdot \text{Hg}(\text{CN})_2$  are added, and after 1 minute the titration is carried out with 0.01 N  $\text{H}_2\text{SO}_4$  to the initial gray shade (Viebock F., Der., 1932, 65, 496).  $\text{Br}^-$  is determined by titration of exactly neutralized solution with 0.01 N solution of  $\text{AgNO}_3$  in the presence of an adsorption indicator (0.1% aqueous solution of Brilliant Yellow) until the yellow-green color changes to orange (RZhKhim, 1955, 46100). A detailed description is given of the selection of optimal conditions of combustion as well as a comparison of the proposed procedure with the

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CZECHOSLOVAKIA/Analytical Chemistry. Analysis of Organic Substances.

E-3

Abs Jour: Ref Zhur-Khim., No 13, 1958, 43082.

undergo quantitative combustion at about  $600^{\circ}$ . Catalytic activity of  $\text{Co}_3\text{O}_4$  is not decreased by the action of halogens or oxides of sulfur, and therefore the same catalyst filling can be used for several months. Preparation of catalyst: to 15 g asbestos and 10 g  $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$  are added 50 ml water and 5 drops of concentrated  $\text{NH}_4\text{OH}$ , after which the mixture is evaporated to dryness and calcined at about  $500^{\circ}$ . Analyses are carried out in the usual manner. Combustion of 11-15 mg requires only 5-15 minutes. Halogens and oxides of sulfur are absorbed on Ag-wool at  $600^{\circ}$ , oxides of nitrogen -- on  $\text{MnO}_2$ . Communication IX see RZhKhim, 1958, 4320.

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CZECHOSLOVAKIA/Analytic Chemistry - Analysis of Organic  
Substances.

E-3

Abstr Jour : Ref Zhur - Khimiya, No 14, 1958, 46438

adjust the results of H and N determinations.

The method of linear regression is the most suitable  
statistical method for the evaluation of the accuracy;  
by that method it is possible not only to describe the  
accuracy, but also to make apparent the constant and  
regularly variable errors.

See report XI in RZhKhim, 1958, 43082.

Card 2/2

**"APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001859220003-1**

**APPROVED FOR RELEASE: 08/31/2001**

**CIA-RDP86-00513R001859220003-1"**

VECERA, M. ; PETRANEK, J. ; GASPARIC, J.

"Identification of organic compounds. XVIII. Chromatography of aromatic hydrazo compounds."

p. 1553 (Chemicke Listy, Vol. 51, no. 8, Aug. 1957, Praha, Czechoslovakia.)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No.6 June 1958

VECERA, M. ; GASPARIC, J. ; SPEVAK, A.

"Identification of organic compounds. XIX. Microidentification of the lower aliphatic alcohols, O-alkyl and N-alkyl groups by paper chromatography."

p. 1554 (Chemicke Listy, Vol. 51, no. 8, Aug. 1957, Praha, Czechoslovakia.)

Monthly Index of East European Accessions (EIAI) LC, Vol. 7, No.6 June 1958.



VECERA, M).

CZECHOSLOVAKIA / Analytical Chemistry. Analysis of Organic Substances.

Abs Jour: Ref Zhur-Khimiya, 1958, No 20, 67346.

Author: Petranek J., Vecera M.

Inst: Not given.

Title: Organic Quantitative Analysis. XVI. Calorimetric Determination of Small Quantities of Aldehydes.

Orig Pub: Chem. listy, 1957, 51, No 9, 1686-1689.

Abstract: Aldehydes (A) when condensed with resorcinol (I) or with fluoroglycine (II) in concentrated  $H_2SO_4$  or HCl give very weak and poorly reproducible colorings. In glacial  $CH_3COOH$  (III), that contains 10-20 vol. %  $H_2SO_4$ , A reacts slowly with I and sufficiently fast with II, even at approx.  $20^\circ$ , resulting in the intensive and stable yellow and orange colorings. Since III should not con-

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CZECHOSLOVAKIA / Analytical Chemistry. Analysis of  
Organic Substances.

E

Abs Jour: Ref Zhur-Khimiya, 1958, No 20, 67346.

Abstract: tain A, it is being purified by fractionation with 5% II and 5% concentrated  $H_2SO_4$ . to 5cc of very dilute solution of A in III, 5cc of III, containing 20 vol. %  $H_2SO_4$  is added, the mixture is then cooled to  $18-20^\circ$  followed by the addition of 1cc of 1% solution of II in III. After 10-30 minutes, the photometric readings are taken using either dark blue or blue-green filters respectively. The Bere's low is being observed for the cases when 5cc solutions contain 26.6 - 265.8  $\gamma$  of n-toluene A, 4.2 - 29.9  $\gamma$  of vinylene, or 4.1 - 30.6  $\gamma$  of piperonal. The greatest intensity of color de-

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CZECHOSLOVAKIA / Analytical Chemistry. Analysis of  
Organic Substances.

E

Abs Jour: Ref Zhur-Khimiya, 1958, No 20, 67346.

Abstract: velops after 10-30 minutes and the color becomes stable after 25-90 minutes. With aliphatic A, II forms a color unstable products. The standard error is  $\pm 2.75\%$ . Alcohols, carbonic acids and their esters do not interfere, however, in the presence of water the color intensities diminish. This method is applicable in particular for the determination of aromatic A. Some of the latter could be identified by means of spectrophotometrical curves obtained for their respective colored products. For Part XV, refer to Ref. Zhur-Khimiya, 1958, 57232.

Card 3/3

VECERA, MIROSLAV

CZECHOSLOVAKIA/Analytic Chemistry. Analysis of Organic  
Substances.

E

Abs Jour: Ref Zhur-Khimiya, No 22, 1958, 73760.

Author : Miroslav Vecera, Antonin Spevak.

Inst : ~~UNIVERSITY~~

Title : Organic Quantitative Analysis. XVII. Determination  
of Little Amounts of Chlorine and Bromine in  
Organic Substances.

Orig Pub: Chem. lity, 1957, 51, No 11, 2037-2040.

Abstract: A rapid, simple and universal method of determination  
of little amounts (0.01 to 2%) of Cl and Br in  
solid and liquid organic substances is proposed.  
1 to 15 mg of the substance is burned in a  $O_2$  flow  
(15 ml per min.) in a Pt combustion boat or glass

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CZECHOSLOVAKIA/Analytic Chemistry. Analysis of Organic Substances.

E

Abs Jour: Ref Zhur-Khimiya, No 22, 1958, 73760.

capillary placed in a Si tube with diaphragms and heated by an electric stove to 800°. The producing hydrogen halide is absorbed from the combustion gases by 2 ml of 5%-ual  $H_2O_2$  solution. 2 ml of 0.3%-ual  $Hg(SCN)_2$  solution in  $CH_3OH$  and 4 ml of 6%-ual  $NH_4Fe(SO_4)_2$  solution in 6 n.  $HNO_3$  are added to the absorbing solution, which is photometered at 470 m $\mu$ . The duration of combustion is 10 to 30 min. Liquid substances with small contents of halogens can be burned in calorimetric bombs. The reducing mineralization with metallic Na and combustion in  $O_2$  atmosphere in a flask yields incorrect results. The calibration curve for the photometric determination of

Card : 2/3

VECERA, M.

CZECHOSLOVAKIA/Analytical Chemistry - Analysis of Organic Substances.

E-3

Abs Jour : Ref Zhur - Khimiya, No 2, 1959, 4378

Author : Vecera, M., Synek, L.

Inst : -

Title : Qualitative Organic Analysis. XVIII. Microdetermination of Carbon and Hydrogen Using Cobaltous-Cobaltic Oxide as a Combustion Catalyst.

Orig Pub : Chem Listy, 51, No 12, 2266-2274 (1957) (in Czech)

Abstract : A simple and reliable micromethod has been developed for the determination of C and H in organic substances. The combustion is carried out in a quartz tube of 300 mm length and 9 mm I. D., using  $\text{CO}_3\text{O}_4$  on asbestos (thickness of catalyst bed 2.5 mm) as catalyst (RZhKhim, 1958, 43082). A 3-5 mg sample is ignited in a Pt-dish in a stream of  $\text{O}_2$  for 3-5 min; for substances having high vapor pressures, 5-10 min are required. The high

Card 1/2

Distr: 4E2c

Quantitative organic analysis. XIII. A rapid carbon-hydrogen microdetermination. M. Večeta, D. Šnobl, and L. Synck (Mikroanaly. Lab. VÚMOP, Pardubice-Rybitví, Czech.) *Mikrochim. Acta* 1975, 9-27; cf. *C.A.* 51, 16207b; 25, 19712b.—This micromethod for the detn. of C and H

uses  $\text{Co}_2\text{O}_3$  as a combustion catalyst. The app. for the combustion, that for removing the other products, and the absorption chambers for the H and C is described. The accuracy is equal to that of other methods. XIV. Microdetermination of sulfur. M. Večeta and D. Šnobl. *Ibid.* 28-40.—This is a rapid and accurate micromethod for detg. S. The substance is first burned in a stream of O at 700°, after which the S oxides are trapped in Ag wool. The trap is heated to 450°, the  $\text{Ag}_2\text{SO}_4$  is extd. with  $\text{H}_2\text{O}$  and the Ag is detd. by potentiometric or visual means. The mechanism of the reaction of the S oxides with Ag is explained. This method is compared statistically with the Zimmermann method (*C.A.* 47, 2638e). Also a rapid colorimetric method for the detn. of 0.003 to 8% S in org. and inorg. material is described. XV. Microdetermination of chlorine and bromine in organic substances. M. Večeta and J. Buláček. *Ibid.* 41-51.—This is a rapid method for detg. Cl and Br in org. materials. The sample is burned in a quartz tube and the halogen ions are then absorbed in  $\text{H}_2\text{O}_2$ . The Cl is then detd. by the Vieböck method (*C.A.* 26, 3206) and the Br argentometrically with the aid of an adsorption indicator. The findings were compared with those of Kainz and Resch (*C.A.* 46, 4950f) and Schöniger (*C.A.* 50, 14433d). A method is described for detg. small amts. of Cl and Br in org. materials. H. W. Harvey

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VLEBAN, M.

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/ Identification of organic compounds. XXI. 2. choice of solvent systems for paper-chromatographic separation of organic compounds. J. Gasparic and M. Vacek (Forschungsinst. organische syntheses, Pardubice-Rybitvi,

Czech.). *Mikrochim. Acta* 1958, 68-91; cf. C.A. 52, 13544b.—Practical examples are given to show how org. compds. can be sepd. by means of paper chromatography. One is not limited to "tested" solvent systems, but can use new suitable systems as the occasion demands. It has been found best to abide by the rules of soly. of org. compds., provided the compd. to be chromatographed is quite sol. in the stationary phase but less sol. in the mobile phase. By altering the stationary phase (water, nonaq., polar solvent, nonpolar solvent) or the polarity and compn. of the mobile phase, the migration of the stains in the chromatogram can be influenced, selected  $R_f$  values can be obtained, and in many cases it is also possible to secure a desired succession of the compds. on the chromatogram. Since the soly. of org. compds. depends on intermol. forces, the problem in connection with structural influences appears very complicated and must be solved individually for each case. Moreover, the soly. characteristics can be affected by using reactive solvents; for instance the compds. can be converted into water-sol. salts. Complications may arise because of the dissocn. and hydrolysis of ionizable compds. The following are among the chief factors, which may make a sepn. possible: functional groups, their number, polarity, relative position, their basicity or acidity, C-atom no. in homologous compds., inter- and intramol. H bonds, steric factors, etc. It then depends on the type of solvent system selected, which of these factors are predominant and which can be neglected or eliminated. If the soly. differences are too slight to permit good sepn., the compds. to be sepd. should, if possible, be converted into derivs. whose structural differences are more pronounced. H. W. Harvey

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Organic quantitative analysis. XIX. Microdetermination of alkyl groups. Miroslav Večeta and Antonín Spěvák (Výzkumný ústav org. syntet. Pardubice-Rybitví, Czech.). *Chem. listy* 52, 1620-6 (1958); cf. *C.A.* 52, 4303g. The microdetn. of O-bound alkyl groups C<sub>1</sub>-C<sub>4</sub> was modified in that the interfering compds. were adsorbed on dry tartar emetic on silica in a modified app. according to Shaw (*C.A.* 41, 7810i) instead of the usual absorption in liquids. The detn. is as precise as the methods of microelementary analysis. XX. Microassay of chlorine in organic compounds by combustion in an empty tube. Miroslav Večeta and Jaroslav Buláček. *Ibid.* 1626-36. In the described method the compd. is heated at 720° in a stream of O in an empty tube (*C.A.* 51, 10207b), Cl is absorbed in dil. H<sub>2</sub>O<sub>2</sub>, and Cl<sup>-</sup> titrated with 0.01N AgNO<sub>3</sub> with brilliant yellow as adsorption indicator. The possible sources of errors were investigated, and statistical evaluation of 79 results are presented. L. J. Urbánek

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Distr: 4E2c(j)

J Identification of organic compounds. XXVI. X-ray diffraction patterns of *S,S*-dialkyl-*N*-*p*-tolylsulfonysulfilimines. Dobroslav Šnobl, Věra Kadanková, Jaromír Petránek, and Miroslav Večeřa (Výzkumný ústav org. synt., Pardubice, Czech.). *Chem. listy* 52, 1637-46 (1958); cf. *C.A.* 50, 16850i; 52, 13544b. —X-ray diffraction patterns are suitable for the identification of thioethers after conversion to the title compds., as shown by differentiation of 23 studied derivs. This method is safer than by means of m.p., eutectical temps., and molten mass as the derivs. do not require a high degree of purity. Values of the interplanar spacings  $d$ , as detd. by the usual technique, in org. compds. having a big elementary cell and low symmetry can be distorted owing to superposition, thus showing considerable deviations from tabulated values. The sources of errors and working technique are discussed. Lower dispersion is recommended. L. J. Urbánek

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Distr: 4E3d/4E2c(j)

Identification of organic compounds. XXVII. Use of Friedel-Crafts acylation for the identification of alkyl aryl sulfides. Jiti Gasparik, Miroslav Vecera, and Miroslav Jurecek (Výzkumný ústav org. syntet., Pardubice-Rybitví, Czech.). *Chem. listy* 52, 1720-5 (1958); *cf. C.A.* 53, 838c. — Alkyl aryl sulfides are first acylated with AcCl and AlCl<sub>3</sub> and the resulting derivs. of PhAc are transformed to 2,4-dinitrophenylhydrazones, oximes, or are oxidized to sulfones. Me sulfides were prepd. by methylation of thiophenols with Me<sub>2</sub>SO<sub>4</sub>, and the higher alkyl aryl sulfides are made as follows: 7 g. Na was dissolved in 150 ml. EtOH, 34.5 ml. o-MeC<sub>6</sub>H<sub>4</sub>SH added with stirring and then 40 g. Me<sub>2</sub>CHBr, the mixt. refluxed 2 hrs. on the steam bath, the solvent distd., the residue dissolved, washed with 5% aq. NaOH, dried with Na<sub>2</sub>SO<sub>4</sub>, and distd. to yield 39 g. product. To prep. the ketones, to 0.8 g. AlCl<sub>3</sub> in 5 ml. CHCl<sub>3</sub> was added dropwise 0.5 g. AcCl and, with cooling, 0.5 ml. of the sulfide in 5 ml. CHCl<sub>3</sub>, the mixt. allowed to stand 1 hr. at room temp., poured over ice and 5 ml. HCl, the org. layer

washed with 5% HCl and 5% NaHCO<sub>3</sub>, filtered, the solvent evapd. and the residue treated with the appropriate reagent [2,4-(O<sub>2</sub>N)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>NHNH<sub>2</sub> in H<sub>2</sub>SO<sub>4</sub> and EtOH, or NH<sub>2</sub>OH in NaOH or C<sub>6</sub>H<sub>5</sub>N (8-10 hrs.)], or oxidized 1 hr. with 5 ml. 30% H<sub>2</sub>O<sub>2</sub> in 5 ml. AcOH on the steam bath and dil. with 50 ml. H<sub>2</sub>O. Alkyl aryl sulfides [b.p./mm., m.p. of the 2,4-dinitrophenylhydrazone (EtOH, AcOH or AcOEt), of the oximes (cyclohexane), and of sulfones (H<sub>2</sub>O), given]: Me, Ph, 53.5°/1.5, 236.5-7.5°, 121°, 128-9°; Et, Ph, 50.3°/2.9, 193°, 90°, 115.5-16.5°; Pr, Ph, 69.1°/2.3, 158.5-60.5°, 75-5.5°, 86.5-7.5°; iso-Pr, Ph, 61°/3.1°, 173-4°, 75.5°, 58.5-9.5°; Me, o-MeC<sub>6</sub>H<sub>4</sub>, (I), 55.6°/1.5, 209.5°, 80°; —; Et, I, 61.8°/1.6, 159°, 91°; —; Pr, I, 68.2°/1.1, 171-2°, 91°; —; iso-Pr, I, 61.4°/1.2, 162°, —; —; Me, p-MeC<sub>6</sub>H<sub>4</sub>, (II), 61.5°/2.2, 213-15°, 108°; —; Et, II, 62.1°/2, 101-3°, 85°; —; Pr, II, 55.6°/0.8, 191-2°, 98°; —; iso-Pr, II, 65.2°/1.4, 159-60°, 91.5°; —. Powder x-ray diagrams were also used for the characterization.

M. Hudlická

MIROSLAV VECERA  
CZECHOSLOVAKIA / Analytical Chemistry. Analysis of  
Organic Substances.

E-3

Abs Jour : Ref Zhur - Khim., No 10, 1958, No 32220

Author : Jiri Gasparic, Miroslav Vecera, Miroslav Jurecek

Inst : -

Title : Identification of Organic Substances. XVI. Identification of Sulfides.

Orig Pub : Chem. listy, 1957, 51, No 4, 660-666; Collect. czechosl. chem. communis, 1958, 23, No 1, 97-104.

Abstract : Continuing the similar study of dialkylsulfides (DAS) containing the alkyls C<sub>1</sub>-C<sub>4</sub> with straight chains, bromides, picrates and perchlorates of dialkyl-n-bromophenacylsulfonia (I) from 17 DAS-s were obtained; they contain one or two C<sub>3</sub>-C<sub>4</sub> alkyls with forked chains (with the exception of tertiary butyl); their melting points, by which it is recommended to identify the corresponding DAS-s, were de-

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terminated (melting points of perchlorates - from 69 to 170°, those of picrates - from 80 to 150°). I is produced by the interaction of the DAS with n-bromophenacylbromide, which takes from 20 min. to 8 hours time; a DAS with forked chains reacts more slowly than a DAS with straight chains. The picrates and perchlorates of higher DAS homologues are produced from bromides without separating the latter from the reaction mixture. It is recommended for a more complete identification of the DAS-s to use the x-ray pictures of powdered I perchlorates and the eutectic temperatures of their mixtures with some standard preparations. The melting points of bromides, perchlorates and picrates of I, as well as x-ray picture characteristics and eutectic temperatures of I perchlorates obtained from the above mentioned DAS-s are presented. See report XV in RZhKhim, 1958, 32229.

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VECERA, MIROSLAV

CZECHOSLOVAKIA/Analytic Chemistry - Analysis of Organic  
Substances.

E-3

Abs Jour : Ref Zhur - Khimiya, No 14, 1958, 46452

Author : XVII - Miroslav Vecera, Jiri Borecky. XVIII - Miroslav  
Vecera, Jaromir Petranek, Jiri Gasparic. XIX - Miroslav  
Vecera, Jiri Gasparic, Antonin Spevak.

Inst : -

Title : Identification of Organic Substances. XVII. Identifica-  
tion of Anthraquinone Sulfoacids. XVIII. Chromatography  
of Aromatic Hydrazo Compounds. XIX. Microidentification  
of Lower Aliphatic Alcohols and O-Alkyl and N-Alkyl  
Groups by Paper Chromatography.

Orig Pub : Chem. listy, 1957, 51, No 5, 974-976; No 8, 1553-1554;  
1554-1556; reports VII, VIII, Collect. czechosl. chem.  
commun., 1958, 23, No 1, 130-133; No 2, 333-335.

Abstract : XVII. The benzylthiuronic (I) and 1-naphthylmethylthiu-  
ronic (II) salts of mono- and disulfo acids of

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Substances.

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Abs Jour : Ref Zhur - Khimiya, No 14, 1958, 46452

anthraquinone are suitable for the identification of the latter. The ultraviolet spectra of these salts are close, but their melting points and eutectic temperatures in mixtures with dicyanamide are different. The salts are precipitated by mixing aqueous solutions of reagents and in the majority of cases, they are recrystallized from 30 to 80%-ual  $C_2H_5OH$ , and some from  $CH_3OH + (CH_3)_2CO$ . Melting points measured under microscope or in a capillary and the eutectic temperatures of mixtures with dicyandiamide (about 1 : 1) of I and II of all isomer anthraquinone sulfoacids are presented. I is more suitable for the identification than II, because it melts more distinctly.

XVIII. The aromatic hydrazo compounds (III) are separated chromatographically and identified on Watman paper No 4 treated with 25%-ual dimethylformamide solution in

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Abs Jour : Ref Zhur - Khimiya, No 14, 1958, 46452

in alcohol (IV) or 10%-ual solution of formamide in alcohol (V) and dried. From 0.5 to 200  $\gamma$  of the sample in 0.1 to 1%-ual alcohol or ether solution is put on the paper. It is developed by the descending method at  $21 \pm 1^\circ$  with cyclohexane or benzene. The dried chromatogram is sprayed with 1%-ual solution of n-dimethylaminobenzaldehyde (VI) in 95 parts of alcohol and 5 parts of concentrated HCl. At this occasions the III-s regroup into corresponding diamines, which together with VI yield products of characteristic color and fluorescence presented in the report. The values of  $R_f$  of III-s are also presented. This method permits to chromatograph several hundreds of  $\gamma$  of the substance and to identify 0.5  $\gamma$  of a III.; it can be used for the control of the benzidine regroupation at industrial scale. For that purpose, 10 ml of the reaction solution is

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Abs Jour : Ref Zhur - Khimiya, No 14, 1958, 46452

alkalized with 5 ml of 50%-ual KOH solution and shaken with 5 ml of  $C_6H_6$ . From 10 to 30 ml of the extract is put on the paper soaked in V, it is developed in a test tube with cyclohexane by the ascending method and treated with VI solution. The chromatographic method is recommended also for the purification of III: 60 g of silica gel (VII) is saturated with 24 ml of IV, suspended in petroleum ether (VIII) and a column 25 mm in diameter is prepared. 2 g of the substance is dissolved in 1 ml of IV, VII is added and the mixture is transferred on the column, which is developed first with 200 ml of VIII and with the mixture VIII -  $C_6H_6$  (4 : 1) after that. XIX. The lower alkyl groups ( $C_1 - C_3$ ) are identified in the shape of corresponding alkyl-3,5-dinitrobenzoates (IX). In order to convert alcohols (X) into IX-s, 0.1 ml of pyridine (XI) and 1 ml of  $C_6H_6$  are added to 10 ml

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Abs Jour : Ref Zhur - Khimiya, No 14, 1958, 46452

of aqueous solution of 5 to 50 mg of X, after which 11 g of  $K_2CO_3$  and the solution of 0.5 g of 3,5-dinitrobenzoyl chloride (XII) in 2 ml of  $C_6H_6$  are added to it at cooling. After having shaken it 3 minutes, IX is extracted with ether, the extract is washed with 1%-ual  $H_2SO_4$  and water, and ether is distilled off. In the case of water-free X, 5 to 50 mg of X are dissolved in 5 ml of  $C_6H_6$ , 50 mg of XII and 0.3 ml of XI are added, all is boiled 1 hour, the benzene solution is cooled, washed with 20%-ual NaOH solution, with water, with 5%-ual  $H_2SO_4$ , and again with water, and benzene is distilled off. In order to split the alkyl groups off the alkoxy compounds and alkylamines and to obtain IX-s, 1 to 2 (2 to 5 correspondingly) mg of the substance is boiled 1 hour with HI solution in  $N_2$  flow; the alkyl iodides are absorbed while forming by the suspension of 3 to 4 mg of Ag-3,5-dinitrobenzoate

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CZECHOSLOVAKIA / Analytic Chemistry. Analysis of In-      E  
organic Substances.

Abs Jour: Ref Zhur-Khimiya, No 18, 1958, 60643.

Author : M. Vecera, L. Synek.

Inst : \_\_\_\_\_

Title : Quantitative Organic Analysis. IX. Microdetermin-  
ation of Sulfur and Substances Containing Barium,  
Lead, Silver and Magnium.

Orig Pub: Collect. czechosl. chem. communs, 1958, 23, No 1,  
133-135.

Abstract: See RZhKhim, 1958, 4320.

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